IN THE DRAWINGS:

Submitted herewith is a replacement sheet of drawing for Fig. 2 for entry in the application file. The replacement sheet of drawing corrects Fig. 2 to add reference numeral 32 to denote the main crown section described in the specification, on page 16, for example, thereby conforming the drawings to the written description.

REMARKS

In the last Office Action, claims 1 and 3 were rejected under 35 U.S.C. §103(a) as being unpatentable over JP 57046181 to Tatsumi in view of U.S. Patent No. 5,576,496 to Carlini et al. ("Carlini"). Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over Tatsumi in view of U.S. Patent No. 5,882,044 to Sloane. Claim 2 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite because of the phrase "tip plane".

In accordance with this response, original claims 1-4 have been amended to overcome the indefiniteness and prior art rejections and in formal respects to better conform the claims to U.S. practice. Claims 5-13 have been added. The specification has been revised to correct grammatical and idiomatic errors, improve the wording and provide a direct antecedent basis for the claim language. Fig. 2 of the drawings has been corrected to add reference numeral 32 to conform the drawings to the written description in the specification. A new abstract has been added that more closely reflects the presently claimed subject matter.

The present invention pertains to a portable watch, such as a divers watch, having an improved structure for removably connecting a winding stem pipe to a case band without using an adhesive and which exhibits improved

waterproof capability. As shown, for example, in the embodiment of Figs. 1-3, the portable watch comprises a case band 13 having a pipe-attachment hole 17 that opens toward both an intracase-band plane and an extracase-band plane of the case band, and a winding stem pipe 21 having an insertion section 22 inserted into the pipe-attachment hole 17 in a removable manner from outside of the case band 13 and including an intracase-band end section 22a that extends beyond the intracase-band plane to the inside of the case band. The winding stem pipe 21 includes an extracase-band end section 23 that has a male screw section 23a.

A pipe stopper 27 is engaged in a removable manner with an engagement groove 25 that extends circumferentially around the outer periphery of the intracase-band end section 22a to prevent the winding stem pipe 21 from being disengaged from the case band 13. A crown 31 has a crown main section 32 formed with a female screw section 35 that is screwed together with the male screw section 23a in a removable manner.

In order to prevent relative rotation between the case band 13 and the winding stem pipe 21, these members are provided with opposed pin-receiving grooves 19 and 24. More specifically, the case band 13 has a pin-receiving groove 19 that opens toward the pipe-attachment hole 17 and also toward at least either one of the intracase-band plane or the

extracase-band plane. The winding stem pipe 21 is provided with a pin-receiving groove 24 that opens toward an outer rim plane of the insertion section 22. During assembly, the winding stem pipe 21 is inserted into the pipe-attachment hole 17 and rotated until the two grooves 19 and 24 are opposed to one another and, in this embodiment, define a circular hole. A rotation-stop pin 26 is inserted into the hole formed by the two opposed pin-receiving grooves 19 and 24 and by such a structure, the case band 13 cannot rotate relative to the winding stem pipe 21.

To prevent withdrawal of the winding stem pipe 21 from the pipe-attachment hole 17, the pipe stopper 27 is removably engaged with an annular engagement groove 25 formed on the outer periphery of the intracase-band end section 22a of the winding stem pipe 21. As shown in Fig. 2, the pipe stopper 27 abuts with an interior surface of the case band 13. An elastic gasket 28 is disposed in a gasket groove 18 formed on the exterior side of the case band 13 and is maintained in a compressed state between the extracase-band end section 23 of the winding stem pipe 21 and the exterior surface of the case band 13, thereby providing a watertight seal between the case band and the winding stem pipe.

In the embodiment shown in Fig. 4, relative rotation between the case band 13 and the winding stem pipe 21 is prevented by providing a noncircular pipe-attachment hole 17 which cooperates with a noncircular outer peripheral portion of the winding stem pipe so as to permit insertion and withdrawal of the winding stem pipe into and from the case band 13 while preventing relative rotation between the two members. In this embodiment, the noncircular pipe-attachment hole and the noncircular outer peripheral portion of the winding stem pipe have two opposed flat sections interconnected by two circular sections.

Independent claim 1 and dependent claims 2-3 are directed to the embodiment of Figs. 1-3, and independent claims 4 and 5 together with dependent claims 6-13 are directed to the embodiment of Fig. 4. As discussed below, the combined teachings of the prior art do not disclose, suggest or render obvious the invention defined in claims 1-13.

The primary reference to Tatsumi applied against original independent claims 1 and 4 typifies the prior art and is described in the background section of the present specification on pages 1-3. As therein described, one drawback of Tatsumi is that the winding stem pipe 12 is fixed to the case band 11 by brazing or the like, which is disadvantageous from the standpoint of allowing easy removal

and exchange of components in the crown-winding stem pipe-winding stem assembly. Insofar as pertinent to the present invention, Tatsumi discloses a portable watch having a case band P1 (using the Examiner's nomenclature) having a pipe-attachment hole P2, a winding stem pipe P4 having an insertion section P12 inserted into the pipe-attachment hole P2 and a male screw section P5, and a crown P6 including a crown main section provided with a female screw section screwed together with the male screw section in a removable manner.

In the Tatsumi portable watch, the insertion section P12 of the winding stem pipe P4 does not extend beyond the inner surface of the case band to the inside of the case band, as required by independent claims 1, 4 and 5. Claim 1 requires that the intracase-band end section extend beyond the intracase-band plane to the inside of the case band. Claim 4 requires an intracase-band end section that extends beyond the inside surface of the case band into the interior of the case band. Claim 5 requires a winding stem pipe having an inner end portion that extends beyond the inside surface of the case body into the interior of the case body. By contrast, in Tatsumi, the inner end portion of the winding stem pipe P4 does not extend beyond the inside surface of the case band P1 and does not extend into the interior of the case band P1. Therefore even if Tatsumi were modified in view of Carlini and

Sloane in the manner proposed in the rejections, the modified portable watch would not correspond to the claimed invention.

Applicants respectfully traverse the prior art rejections based on modifying Tatsumi in view of Carlini and Sloane. Carlini relates to a test unit for testing constant velocity universal joints that are used in drive systems of motor vehicles. Sloane relates to a safety retainer assembly for holding a nut in position on a threaded nipple, such as used in fuel line systems and electrical connections. Neither reference relates to the art of timepieces, and more particularly, the art of watches, to which the present invention is directed. In describing and applying Carlini and Sloane, the Examiner incorrectly refers to the parts of the Carlini test unit and the parts of the Sloane safety retainer assembly as "watch parts" thereby implying that Tatsumi, Carlini and Sloane all pertain to the art of watches. Applicants respectfully submit that such a contrived interpretation of the secondary references is without foundation and completely contrary to the disclosures of the references, and evidences the hindsighted nature of the rejections. It is clear that Tatsumi, on the one hand, and Carlini and Sloane, on the other, pertain to non-analogous arts, and the mischaracterization of the parts in the secondary references as being watch parts is of no aid in seeking to establish obviousness.

"In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." In re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also In re Deminski, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992) ("A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem."); Wang Laboratories Inc. v. Toshiba Corp., 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993); and State Contracting & Eng'g Corp. v. Condotte America, Inc, 346 F.3d 1057, 1069, 68 USPQ2d 1481, 1490 (Fed. Cir. 2003) (where the general scope of a reference is outside the pertinent field of endeavor, the reference may be considered analogous art if subject matter disclosed therein is relevant to the particular problem with which the inventor is involved).

According to the statement of rejection, the Examiner contends that Tatsumi and Carlini are analogous art "because they are dealing with the same problem namely securing pipes inside cylindrical openings in a rotationally secure fashion." Applicants respectfully submit that this characterization is an over-simplification of the problems with which the two references are concerned.

Tatsumi is concerned with reducing the amount of rotation of a watch crown needed to effect locking and unlocking thereof and does so by a pair of engaging screw parts that have multiple threads. Tatsumi is unconcerned with removably connecting the winding pipe stem 12 to the opening in the case band 11 and contradictorily teaches fixing the winding stem pipe to the opening in the case band 11 by brazing or other means of fixation. By contrast, Carlini is concerned with removably connecting different spindle adaptors 70 to a motor-driven drive spindle 44 for quick mounting and removal of the different spindle adaptors. For this purpose, the spindle 44 is provided with a keyway 77 in which a drive key 72 is press fit so that the drive key 72 remains affixed in the keyway 77 (column 5, lines 5-29). In this manner, different spindle adaptors 70 can be easily mounted on removed from the drive spindle 44 since each spindle adaptor has a keyway 71 adapted to slidably receive the key 72.

Since Tatsumi does not disclose or suggest the desirability of mounting the winding stem pipe 12 in the opening of the case band 11 in a removable manner, there is no teaching in Tatsumi that would have motivated one of ordinary skill in the art to resort to Carlini, which relates to the non-analogous art of test units for universal joints, as a basis for modifying Tatsumi to removably connect the winding stem pipe 12 to the case band 11 by means of a key-and-keyway connection. The only basis for the proposed modification of Tatsumi in view of Carlini is applicants' own disclosure.

In the case of Sloane, the Examiner contends that Tatsumi and Sloane are analogous art "because they deal with the same problem namely rotationally fixing pipes in a housing." This is not correct. As noted above, Tatsumi is concerned with reducing the amount of rotation of a watch crown, not with removably connecting a pipe in a housing. Sloane, on the hand, is concerned with removably connecting a nut to a threaded nipple by means of an assembly that includes a cylindrical portion 11 and a shaped portion 12, wherein the shape portion 12 is intended to be employed in connection with a coupling nut 13 which, in turn, includes a cylindrical portion 15 and a nut portion 16.

Since Tatsumi does not disclose or suggest connecting the winding stem pipe 12 to the opening in the case band 11 in a removable manner, there is no teaching in Tatsumi that would have led one of ordinary skill in the art to resort to Sloane, which relates to the non-analogous art of safety retainer assemblies, as a basis for modifying Tatsumi in the manner proposed in the rejection. It is inconceivable that one skilled in the watch art would resort to Sloane and select therefrom the nut members 9 and 13 from among the assembly of parts shown in Fig. 2 and conclude from Sloane that it would be obvious to modify the Tatsumi watch to removably connect the winding stem pipe 12 to the case band 11 using nut members 9 and 13 as disclosed by Sloane. The problems confronting Tatsumi and Sloane are totally different and unrelated, as are the solutions to these problems. In the absence of applicants' own disclosure as a teaching basis, one skilled in the art would not have found it obvious to modify Tatsumi in view of Sloane in the manner stated in the rejection.

In addition to the foregoing, independent claims 1, 4 and 5 require a stopper engaged in a removable manner with an engagement groove that extends circumferentially around the outer periphery of an inner portion of the winding stem pipe to prevent the winding stem pipe from being disengaged from the case band. More specifically, claims 1 and 4 require a

pipe stopper engaged in a removable manner with an engagement groove that extends circumferentially around the outer periphy of the intracase-band end section to prevent the winding stem pipe from being disengaged from the case band. Claim 5 requires a stopper removable engaged with an annular groove provided on the inner end portion of the winding stem pipe and abutting with an interior surface of the case body to prevent withdrawal of the winding stem pipe and being disengageable from the groove to permit withdrawal of the winding stem pipe. The combined teachings of the prior art do not teach this feature.

In Tatsumi, the winding stem pipe does not have an intracase-band end section that extends beyond the inside surface of the case band 11 into the interior of the case band, and Tatsumi does not employ a pipe stopper that is engaged in a removable manner with an engagement groove that extends circumferentially around the outer periphy of the intracase-band end section to prevent the winding stem pipe from being disengaged from the case band, as required by claims 1 and 4. To the contrary, Tatsumi teaches fixing the inner end portion of the winding stem pipe 12 at a midpoint in the opening in the case band 11 by brazing or the like so that the winding stem pipe is fixed to the case band in a permanent manner, not in a removable manner. Similarly, Tatsumi does

not disclose a stopper removably engaged with an annular groove formed on the inner end portion of the winding stem pipe, wherein the stopper abuts with an interior surface of the case body to prevent withdrawal of the winding stem pipe, and is disengageable from the groove to permit withdrawal of the winding stem pipe, as required by claim 5. As the winding stem pipe 12 of Tatsumi does not extend completely through the case band 11 so that an inner end portion thereof extends beyond the inside surface of the case body into the interior of the case body, no modification of Tatsumi could be made in view of Carlini and Sloane that would result in the claimed invention.

Furthermore, it is not understood by what manner Tatsumi would be modified in view of Sloane, as proposed in the statement of rejection, to obtain the claimed invention. The Examiner states that it would have been obvious "to combine Sloane's pipe fixing design with Tatsumi's invention." Insofar as disclosed, Sloane's pipe fixing design comprises the assembly shown in Fig. 2, and it is not understood how the Tatsumi watch could be modified in view of the pipe fixing assembly shown in Fig. 2 of Sloane to arrive at the claimed invention. In the event the Examiner maintains a rejection based on Sloane, applicants respectfully request that the Examiner delineate the manner in which Tatsumi would be modified in view of Sloane beneath the terms of the claims.

The dependent claims set forth further features of the embodiments of the present invention and each of these claims is patentable over the prior art for at least the same reasons as given above with respect to independent claims 1, 4 and 5.

In view of the foregoing, applicants respectfully submit that claims 1-13 patentably distinguish over the prior and are in condition for allowance. Accordingly, favorable reconsideration and passage of the application to issue are respectfully requested.

Respectfully submitted,

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